

REMARKS

Applicants respectfully request further examination and reconsideration in view of the above amendments and the arguments set forth fully below. In the Office Action mailed April 7 2006, claims 1-19 have been rejected and claim 1 and the title have been objected to. In response, the Applicants have submitted the following remarks, amended claims 1, 3 and 18, and cancelled claim 2. Accordingly, claims 1 and 3-19 are pending. Favorable reconsideration is respectfully requested in view of the amended claims and the remarks below.

Specification Objections

Within the Office Action, it is stated that the title of the invention is not descriptive. In response, the Applicants have amended the title to read "Method of Analyzing Non-Invasive Cardiac Parameters." The Applicants respectfully submit that this amended title is clearly indicative of the invention to which the claims are directed. Accordingly, the Applicants respectfully request that the objection to the specification is withdrawn.

Claim Objections

Claim 1 has been objected to because there appears to be a typographical error in the third line of the claim. By the above amendment, the Applicants have amended claim 1 such that "the patient's" now reads "a patient's," thus remedying the antecedent basis problem. The Applicants respectfully request that the objection to claim 1 be withdrawn.

Claim Rejections Under 35 U.S.C. §101

Claim 1 has been rejected under 35 U.S.C. §101 because the claimed invention lacks patentable utility. Within the Office Action it is stated that the final limitation of claim 1 appears to be an abstract idea rather than a practical application of that idea. By

the above amendment, the Applicants have amended the final limitation of claim 1 to read "determining a variation between the first value and the second value," thus adding a tangible, useful and concrete method step. Accordingly, the Applicants respectfully submit that the rejection under 35 U.S.C. §101 be withdrawn.

Rejections Under 35 U.S.C. §102

Claims 1-3 have been 35 U.S.C. §102(b) as being anticipated by, or in the alternative, under 35 U.S.C. §103(a) as obvious over U.S. Patent No. 4,136,690 to Anderson (hereinafter Anderson). The Applicants respectfully disagree with this rejection.

Anderson relates to vector analysis of ECG arrhythmias. Anderson does not teach defining a relationship between depolarization and repolarization, including measuring a 3-D QRS-T angle wherein the measuring of the 3-D QRS-T angle is effectuated with an area detection method.

In contrast to the teachings of Anderson, the present invention utilizes a 3-D QRS-T angle, which is more representative of true heart dye pole. The present invention uses an area detection method in measuring the QRS-T angle.

The amended independent claim 1 is directed to a method of using an electrocardiogram signal comprising assessing a patient's cardiac vulnerability to sudden cardiac death by defining a relationship between depolarization and repolarization, including measuring a 3-D QRS-T angle, wherein the measuring 3-D QRS-T is effectuated with an area detection method, determining a first value representative of the relationship for a first beat of the electrocardiogram signal, determining a second value representative of the relationship for the second beat of the electrocardiogram signal and determining a variation between the first value and the second value. As discussed above, Anderson does not teach or make obvious the step of defining a relationship between depolarization and repolarization, including measure a 3-D QRS-T angle, wherein the measuring of the 3-D QRS-T angle is effectuated with an area detection method. For at least these reason, the independent claim is allowable over the teachings of Anderson.

Claims 2 and 3 are dependent upon the independent claim 1. As discussed above, the independent claim 1 is allowable over the teachings of Anderson. Accordingly, claims 2 and 3 are also allowable as being dependent upon an allowable base claim.

Claims 1, 4-5 and 8 have been rejected under 35 U.S.C. §102(e) as anticipated by, or in the alternative, under 35 U.S.C. §103(a) as obvious over U.S. Patent Application No. 2004/0220635 to Burnes (hereinafter Burnes). The Applicants respectfully disagree with this rejection.

Burnes relates to a system and method for monitoring electrical dispersion of the heart by including a implantable medical device in a socioelectrode system for sensing cardiac signals. However, Burnes also does not teach defining a relationship between depolarization and repolarization, including measuring a 3-D QRS-T angle, wherein the measuring of the 3-D QRS-T angle is effectuated with an area detection method. For at least these reason, the independent claim 1 is also not anticipated or obvious in light of Burnes.

Claims 4-5 and 8 are dependent upon the independent claim 1. As discussed above, the independent claim 1 is allowable over the teachings Burnes. Accordingly, claims 4-5 and 8 are also allowable as being dependent upon an allowable base claim.

Rejections Under 35 U.S.C. §103

Claims 6-7 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Anderson. Claims 6-7 are dependent upon the independent claim 1. As discussed above, the independent claim 1 is allowable over teachings of Anderson. Accordingly, claims 6-7 are also allowable as being dependent upon an allowable base claim.

Claims 9 and 18 are rejected under 35 U.S.C. §103(a) as being unpatentable over Anderson in view U.S. Patent No. 4,732,157 to Kaplan et al. (hereinafter Kaplan). The Applicants respectfully disagree with this rejection.

Kaplan merely relates to an apparatus and method for quantifying variability and physiological wave forms, but like Anderson, does not teach or make obvious defining a relationship between depolarization and repolarization, including measuring a 3-D QRS-T

angle, wherein the measuring of the 3-D QRS-T angle is effectuated with an area detection method. Therefore, for the same reasons as discussed above with respect to claim 1, the Applicants respectfully submit that claim 18 is also allowable over the teachings of Anderson, Kaplan and their combination. Claim 9 is dependent upon the independent claim 1. As discussed above, the independent claim 1 is allowable over the teachings of Anderson. Accordingly, claim 9 is also allowable as being dependent upon an allowable base claim.

Claims 10 and 11 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Anderson in view of U.S. Patent No. 5,265,617 to Verrier et al. (hereinafter Verrier). Claims 10-11 are dependent upon the independent claim 1. As discussed above, the independent claim 1 is allowable over the teachings of Anderson. Accordingly, claims 10-11 are also allowable as being dependent upon an allowable base claim.

Claims 12 and 14-16 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Anderson in view of Ralph et al. (hereinafter Ralph). claims 12 and 14-16 are dependent upon the independent claim 1. As discussed above, the independent claim 1 is allowable over the teachings of Anderson. Accordingly, claims 12 and 14-16 are also allowable as being dependent upon an allowable base claim.

Claim 13 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Anderson in view of Ralph and Verrier. Claim 13 is dependent upon the independent claim 1. As discussed above, the independent claim 1 is allowable over the teachings of Anderson. Accordingly, claim 13 is also allowable as being dependent upon an allowable base claim.

Claim 17 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Anderson in view of Ralph and Burnes. Claim 17 is dependent upon the independent claim 1. As discussed above, independent claim 1 is allowable over the teachings of Anderson. Accordingly, claim 17 is also allowable as being dependent upon allowable base claim.

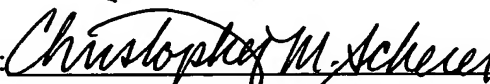
Application No. 10/824,950
Amendment Dated June 6, 2006
Reply to Final Rejection of April 7, 2006

Claim 19 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Anderson in view of Kaplan and Verrier. Claim 19 is dependent upon independent claim 18. As discussed above, the independent claim 18 is allowable over the teachings of Anderson and Kaplan. Accordingly, Claim 19 is also allowable as being dependent upon an allowable base claim.

For these reason, Applicants respectfully submit that all claims are now in a condition for allowance, and allowance at an early date would be appreciated. Should the Examiner have any questions or comments, they are encouraged to call the undersigned at (414) 271-7590 to discuss the same that any outstanding issues may be expeditiously resolved.

Respectfully submitted,

ANDRUS, SCEALES, STARKE & SAWALL, LLP

By: 
Christopher M. Scherer
Reg. No. 50,655

Andrus, Scales, Starke & Sawall, LLP
100 East Wisconsin Avenue, St. 1100
Milwaukee, WI 53202
(414) 271-7590